3.3 City CIP Project Planning & Design

3.3.1 Introduction

This program component is applicable to the City departments that conduct Capital Improvement Program (CIP) planning and design activities. The goal of this component is to ensure that City projects are planned and designed to avoid or minimize pollutant discharges to the storm drain conveyance system and receiving waters. Storm Water Best Management Practices are commonly referred to as Best Management Practices (BMPs) or Storm Water Practices (these terms may be used interchangeably). Storm water requirements for projects are contained in the San Diego Municipal Code (http://clerkdoc.sannet.gov/Website/mc/mc.html), as follows:

- Chapter 4 Article 3 Division 3 – Storm Water Management and Discharge Control
- Chapter 14 Article 2 Division 1 – Grading Regulations
- Chapter 14 Article 2 Division 2 – Drainage Regulations

Referenced in the regulation is the City of Los Angeles ***Reference Guide for Stormwater Best Management Practices, July 2000*** (http://www.lacity.org/san/swmd/) for use in determining appropriate storm water BMPs for projects. With the adoption of the City's Standard Urban Storm Water Mitigation Plan (SUSMP), specific priority projects will be required to implement one or a combination of storm water BMPs including, 1) site design BMPs, 2) source control BMPs, and 3) structural treatment BMPs for specific high priority projects. High priority projects include but are not limited to roadways and City facilities with parking lots greater than 5,000 square feet or greater than 15 parking spaces (exposed to storm water). Storm Water Pollution Prevention Program (Storm Water Program) will be involved in the City CIP project process by reviewing post-construction storm water BMPs during the planning and design phases.

Information about CIP projects is available to the general public. The CIP budget is available for review online at http://www.sandiego.gov/budget/ and lists schedules for expenditures and contact information for each CIP project. Additionally, Council approval is required for CIP projects. The public can review the Council docket calendar and submit comments online at http://clerkdoc.sannet.gov/Website/city-docket.

The City's program must meet the requirements of the San Diego Municipal Storm Water Permit, as described in Table 3.3-1.

Table 3.3-1. Permit Requirements – City CIP Project Planning & Design.

Section	*Requirement (Summary)*	*Permit Section*
3.3.2	Modify development project planning & bid process	F.1.b.(1)

Section	*Requirement (Summary)*	*Permit Section*
3.3.2	Incorporate the jurisdictional Standard Urban Storm Water Mitigation Plan (SUSMP) into the CIP project planning & bid process	F.1.b.(2)
3.3.2	Modify construction plan preparation & bid process	F.2.c
3.3.2	Implement an educational program for all pertinent target audiences regarding impacts of development & construction on water quality	F.1.d. F.2.j
3.3.2	Designate and Implement an Educational Program for all pertinent target audiences	F.4.a F.4.b F.4.c
3.3.3	Develop a budget for storm water expenditures for each fiscal year covered by the Municipal Permit	F.8
3.3.4	Document activities for Jurisdictional Urban Runoff Management Program Annual Report	I

The objectives of this component are to:

- Develop procedures for City CIP projects to plan and budget for the construction of post-construction storm water best management practices in City projects, including jurisdictional Standard Urban Storm Water Mitigation Plan (SUSMP) requirements, where applicable to avoid or minimize pollutant discharges;
- Develop the procedure for City CIP projects to include construction sediment and erosion control measures into project contracts when excavation or grading is to occur;
- Establish and require the use of standard specifications in City contracts for construction sediment and erosion control measures and other storm water quality protection measures (e.g., storage of materials, concrete washout areas, contain sawcut slurry, contractor employee training);
- Educate project managers, designers and consultants and other target audiences about water quality laws and regulations, connections between land use decisions and water quality, construction and post-construction storm water quality design approaches, and the State General Storm Water Construction Permit requirements;
- Develop Storm Water Pollution Prevention Plan guidelines for use by City designers and consultants;
- Actively participate in the development of Drainage Design Manual revisions and other guidelines to address storm water quality.

3.3.2 Activities

In order to effectively implement the development and re-development regulation changes, project planning storm water requirements, and education and training outlined below, each department that conducts CIP planning and design activities shall

maintain a designated coordinator or coordinators to maintain a working understanding of the Municipal Permit so that he/she can provide guidance to department management and staff in implementing the City CIP Project Planning & Design component of the Urban Runoff Management Plan. The name(s) of the coordinator shall be submitted to the Storm Water Program by Thursday, February 21, 2002— the Urban Runoff Management Program implementation date. Each department shall provide the names of new representatives whenever the designated coordinator is replaced. The Storm Water Program will interact with the coordinator(s) to provide the latest Municipal Permit information and to request annual compliance reports from each department.

The following categories of projects are typically designed under the CIP umbrella:

1) Water & Sewer Group Jobs – Linear projects that involve the replacement of existing water and sewer pipelines that are either deteriorated or undersized. Sewer Group Jobs also include the replacement of manholes and laterals. Water Group Jobs include the replacement of existing fire hydrants and connection services.
2) Pump Stations – Retrofitting of existing or design of new facilities that use mechanical means of transporting water and sewer through the utility system.
3) Roadways, medians, sidewalks, curb & gutter, curb ramps – construction of medians to separate traffic on minor and major roadways, addition of curb ramps for access on existing sidewalk corners.
4) Bridges – Retrofitting of existing or design of new spanned structures for vehicle and pedestrian access.
5) Drainage structures – Replacement of existing deteriorated or undersized storm drain pipes and construction of curb inlets and clean outs.
6) Public buildings – Design and construction of new facilities, remodels and upgrades of libraries, recreation facilities, office space and police, fire and lifeguard stations.
7) Park facilities – Retrofitting of existing or designing of new facilities within regional parks, open space parks, and community and neighborhood parks. Additional park facilities include golf courses, tennis courts, pools, parking lots and operational facilities.
8) Major Pipelines- Large diameter trunk sewers or interceptors or water distribution mains
9) Treatment Plants- water or wastewater treatment plant construction, remodel, or expansion
10) Reservoirs - water storage facility repairs or enhancements
11) Special projects – Projects that are identified as being outside of the realm of typical CIP projects as described above (e.g., new Ballpark, downtown library).

CIP projects shall consider both interim and long-term storm water quality as part of project development. Storm water BMPs shall be included in the project to mitigate the project impacts. Because of the variety of projects, there is no “one size fits all”

approach to storm water pollution prevention and BMP selections shall be made on a case-by-case basis. The following is a list of BMPs that may be used to minimize the introduction of pollutants of concern that may result in significant impacts to receiving waters.

Site Design BMPs

Minimizing Impervious Areas

- Reduce sidewalk widths and incorporate landscaped buffer areas between sidewalks and streets.
- Design residential streets for the minimum required pavement widths
- Minimize the number of residential street cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.
- Use open space development that incorporates smaller lot sizes
- Increase building density while decreasing the building footprint
- Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together
- Reduce overall imperviousness associated with parking lots by providing compact car spaces, minimizing stall dimensions, incorporating efficient parking lanes, and using pervious materials in spillover parking areas

Increase Rainfall Infiltration

- Use permeable materials for private sidewalks, driveways, parking lots, and interior roadway surfaces (examples: hybrid lots, parking groves, permeable overflow parking, etc.)
- Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas, and avoid routing rooftop runoff to the roadway or the urban runoff conveyance system

Maximize Rainfall Interception

- Maximizing canopy interception and water conservation by preserving existing native trees and shrubs, and planting additional native or drought tolerant trees and large shrubs.

Minimize Directly Connected Impervious Areas (DCIAs)

- Draining rooftops into adjacent landscaping prior to discharging to the storm drain
- Draining parking lots into landscape areas co-designed as biofiltration areas
- Draining roads, sidewalks, and impervious trails into adjacent landscaping

Slope and Channel Protection

- Use of natural drainage systems to the maximum extent practicable
- Stabilized permanent channel crossings

- Planting native or drought tolerant vegetation on slopes
- Energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels

Maximize Rainfall Interception

- Cisterns
- Foundation planting

Increase Rainfall Infiltration

- Dry wells

Source Control BMPs

- Storm drain system stenciling and signage
- Outdoor material and trash storage area designed to reduce or control rainfall runoff
- Efficient irrigation system

Treatment Control BMPs

Biofilters

- Grass swale
- Grass strip
- Wetland vegetation swale
- Bioretention

Detention Basins

- Extended/dry detention basin with grass lining
- Extended/dry detention basin with impervious lining
- Catch basin screens

Infiltration Basins

- Infiltration basin
- Infiltration trench
- Porous asphalt
- Porous concrete
- Porous modular concrete block

Wet Ponds and Wetlands

- Wet pond (permanent pool)
- Constructed wetland

Drainage Inserts

- Oil/Water separator

- Catch basin insert
- Storm drain inserts

Filtration Systems

- Media filtration
- Sand filtration

Continuous Flow Deflection/ Separation Systems

- Swirl Concentrator

In addition, the Storm Water Program has developed a Storm Water Pollution Prevention Plan (SWPPP) checklist for use by Project Managers.

Each department will conduct the following activities, which are further described in the Activities section above:

Planning

- Incorporate post-construction storm water BMPs into the planning phase when the project scope is created;
- Apply site design and source controls BMPs to projects
    - Site Design BMPs: Storm water control can be achieved through the creation of a hydrologically functional project design that attempts to mimic the natural hydrologic regime. This objective is accomplished by:
        - Reducing imperviousness, conserving natural resources and areas, maintaining and using natural drainage courses in the storm water conveyance system, and minimizing clearing and grubbing.
        - Providing runoff storage measures dispersed uniformly throughout a site's landscaping with the use of a variety of detention, retention, and runoff practices.
        - Implementing on-lot hyrdologically functional landscape design and management practices.
    - Source Control BMPs include storm drain stenciling or signage, design outdoor material storage areas to reduce pollution introduction, design trash areas to reduce pollution introduction, use efficient irrigation systems & landscape design
- As appropriate, projects shall include structural treatment BMPs (e.g., biofilters, detention basins, infiltration basins, wet ponds or wetlands, drainage inserts, filtration, and continuous flow deflection systems).
- Consider long-term operation and maintenance costs to evaluate BMP alternatives
- Submit preliminary plans or design study identifying the post-construction BMPs for the project to the Storm Water Program for review;

Design

- Incorporate construction BMPs (e.g. sediment & erosion control measures, avoid grading in the rainy season) into the project plans and specifications;
- Include post-construction BMP maintenance requirements on project plans;
- Submit project plans, and specifications including drainage study to the Storm Water Program for review;
- If applicable, obtain and comply with State General Storm Water permit requirements;
- Create a Storm Water Pollution Prevention Plan (SWPPP) for the construction site as required by the State General Storm Water Permit or CEQA Clearance;

The following guidelines will also be prepared to assist in the inclusion of water quality control measures in the design of CIP projects:

- Establish Standard Specifications/ Bid items for sediment and erosion control measures;
- Develop and update Storm Water Pollution Prevention Plan guidelines;
- Update the City's Drainage Design Manual (1984) to incorporate water quality objectives

The Storm Water Program intends to work closely with Project Managers to ensure that appropriate storm water BMPs are implemented. Guidance materials addressing specific department concerns will be developed over time.

Education & Training

1. Internal/Municipal Education:

The City of San Diego plans to conduct two levels of education and training for staff: General and Activity Specific. All staff will receive a basic introduction to the issue via a "General Storm Water" workshop created and funded by the General Services Storm Water Pollution Prevention Program. Additionally, those departments or work groups that perform work activities specifically identified in, and affected by, the Permit will create and execute and fund Activity Specific training sessions to introduce new work processes, functions and behaviors that incorporate the Best Management Practices (BMPs) necessary for staff to prevent illegal discharges into the City's storm water collection and conveyance system and recreational waters. Additionally, the Departments will fund the External Education and Outreach elements in this plan. All education and outreach covered by the permit shall contain the phrase, "Another City of San Diego Think Blue Program protecting our beaches, bays and watersheds."

A) General Storm Water Training Funded By the Storm Water Program:

The General Storm Water workshops, while created by the Storm Water Program, are primarily being given by trainers to the staff of their respective departments. And, Items

2, 3, 4, 5 and 6, below, are the educational materials created for the workshops. A "Train the Trainer " workshop was also created and given by the Storm Water Program (Item 7) to familiarize the trainers on the material and subject matter prior to rolling out the General Training workshop to their department staff.

Table 3.3-2. Storm Water Program General Training.

ITEM	AVAILABLE
1. Clean Water Leader/3-Cs BMP Reference Card	July 2001
2. General Strom Water Training Video	October 2001 To be completed by June 2002
3. City Employee Brochure	October 2001
4. Stop Pollution Pad	October 2001
5. Employee Knowledge & Behavior Survey. To be given before and after each General Storm Water Workshop by department trainers	October 2001
6. Frequently Asked Questions for department Trainers	October 2001
7. Train the Trainer Sessions. Training of department trainers on content and materials for the General Strom Water Workshops	September 10-14, 2001
8. Storm Water Newsletter	July/August 2002*

**** Note that Items 1 through 7 occurred in FY 2002 for city-wide distribution, and that Item 8 is slated for Fiscal Year 2003 and reflects an available date.***

B) Activity Specific Storm Water Best Management Practices Training(s):

The Departments involved with the designing and planning of CIP projects will work closely with the Storm Water Program to create a complete training module for staff and to establish a system to update and improve the information and training materials available to staff.

The City conducts a Project Management Academy for engineers and project managers 1-2 times each year. This Academy curriculum includes information about project management theory, City procedures, and environmental regulations. The Storm Water Pollution Prevention Program presents information urban runoff, storm water regulations, and pollution prevention measures. A standard presentation was created and is used (and updated) each year.

Table 3.3-3. Department Training Activities.

ITEM	AVAILABLE*

ITEM	AVAILABLE*
1. Identify needs, create and execute Activity Specific trainings/workshops	February 2003
2. Create Storm Water BMP Guidelines for Staff	February 2003
3. Update BMP Guidelines -periodic	June 2004
4. Storm Water BMP Bulletin Boards in Employee Area(s)	June 2003
5. Train new employees on Storm Water activities. General and Activity Specific to be conducted by supervisor	New Employee Orientation

**** Note the completion dates listed are estimated. Actual completion dates may vary depending upon other program factors.***

2. External Education:

The following target audiences have been identified for CIP Project Planning and Development: Consulting firms, Engineering organizations, Construction (Contractors, suppliers), other Agencies, Quasi-Governmental (community planning groups), General Public and Educational Institutions. Those Departments responsible for the planning and design of CIP projects will conduct the following outreach to educate the target audiences on the important role they have in protecting water quality.

City staff participates actively in the activities of the American Public Works Association San Diego and Imperial Counties Section. In particular, they have been involved in the educational seminars. Over the past year, the City of San Diego has participated in the development and success execution of two seminars on the storm water regulations, a presentations in June 2001 and roundtable discussion in October 2001.

Table 3.3-4. Department External Education Activities and Estimated Costs.

ITEM	AVAILABLE *
1. In notifications to the Public of upcoming construction activities, reference pollution control efforts that may occur in the public right-of-way and the importance of leaving the protective barriers in place during construction.	June 2002
2. All publicly funded education/outreach covered by the permit shall contain the phrase, “Another City of San Diego Think Blue program protecting our beaches, bays and watersheds”.	N/A
3. City senior staff shall educate the impacted targeted audiences by participating in seminars, workshops and other educational avenues offered by the local professional organizations, such as EGCA; ASCE, BIA, AGC, etc. when opportunities arise.	February 2002
4. Articles to local trade publications and journals shall be written and offered for publication.	February 2003

5. Storm Water information shall be made available on the Department Web Site.	June 2002

**** Note the completion dates listed are estimated. Actual completion dates may vary depending upon other program factors.***

3.3.3 Phasing

Year 1 (July 1, 2001 – June 30, 2002):

- Prepare/Implement education program
- Prepare boiler specification language and details to include in all contract documents
- Implement BMPs into designs as standard practice
- Develop guidelines

Year 2 (July 1, 2002 – June 30, 2003):

- Implement Year 2 storm water practices
- Prepare projected storm water budget
- Education activities
- Prepare & submit annual activities report
- Assess, revise budget
- Modify storm water guidelines, specifications, details, etc. as necessary

Year 3 (July 1, 2003 – June 30, 2004):

- Implement Year 3 storm water practices
- Education activities
- Prepare & submit annual activities report
- Assess, revise budget
- Modify storm water guidelines, specifications, details, etc. as necessary

Year 4 (July 1, 2004 – June 30, 2005):

- Implement Year 4 storm water practices
- Education activities
- Prepare & submit annual activities report
- Assess, revise budget
- Modify storm water guidelines, specifications, details, etc. as necessary

Year 5 (July 1, 2005 – June 30, 2006):

- Implement Year 4 storm water practices identified
- Education activities

- Prepare & submit annual activities report
- Assess, revise budget
- Modify storm water guidelines, specifications, details, etc. as necessary

Actual implementation of the activities listed above is dependant upon identification of funding in future yearly budgets and City Council approval.

3.3.4 Annual Assessment

The following form is representative of the quantitative and qualitative measures that will be tracked by the Storm Water Program regarding the City CIP Project Planning & Design component in order to prepare the Jurisdictional Urban Runoff Management Program annual assessment. ***These assessment factors and questions are presented for information only; some questions may be modified prior to each annual assessment period, and not all of the factors or questions below may apply to each component's responsible department(s)***. Prior to each fiscal year, a tailored Annual Assessment Form will be distributed to responsible departments, and will include an Excel spreadsheet containing direct and indirect quantitative and qualitative measures similar to the example below. The Storm Water Program will provide a blank copy of the Annual Assessment Form and additional guidance to department management prior to the beginning of each fiscal year. Submission of this report will require department director approval.

Program Assessment Reporting Form - City CIP Project Planning & Design Component

QUANTITATIVE ASSESSMENT:

Activity	Quantity	Units	Comments
Number of projects subjected to SUSMP requirements		#	Include ministerial and discretionary projects

QUALITATIVE ASSESSMENT:

1. Describe the major accomplishments of the your department's component over the past year. (General Plan or ordinance revisions, procedure/approval process changes, SUSMP guidance material)

2. Summarize the educational and outreach activities your Department has conducted over the past year to educate staff, consultants and the public on water quality principles.

3. Summarize new activities or improvements to be implemented next year as a result of your self-assessment.

4. Other comments.

FINANCIAL ASSESSMENT:

Estimated annual storm water expenditures:
Personnel Expenditures: _____
Non-personnel Expenditures: _____
Total expenditures: _____